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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,553	12/11/2003	Wai T. Lam	34826-1014	7752

7590
Kaye Scholer LLP
425 Park Avenue
New York, NY 10022-3598

EXAMINER

PATEL, HETUL B

ART UNIT	PAPER NUMBER
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2186

MAIL DATE	DELIVERY MODE
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07/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/733,553

Applicant(s)

LAM ET AL.

Examiner

Hetul Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 10-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 10-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 09, 2007 has been entered and carefully considered.
2. Claims 1, 5, 10, 18, 29, 32, 28 and 42 are amended; claims 43-44 are newly added; and none of the claims are cancelled. Therefore, claims 1-5 and 10-44 are currently pending in this application.
3. Applicant's arguments filed on July 09, 2007 have been considered but are moot in view of the new ground(s) of rejection.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "METHOD AND SYSTEM FOR EFFICIENTLY COPYING/REPLICATING VALID DATA ON DISK".

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 25 recites the limitation "the file system" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2, 10-11, 13, 18, 20, 25-26, 28-29, 31-32, 34-35 and 37-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Klein (USPN: 5,873,101).

As per claim 1, Klein teaches a method for replicating data from a storage device (i.e. 200 in Fig. 2), comprising identifying one or more data blocks (i.e. the data blocks 215 in Fig. 2) on the storage device (i.e. 200 in Fig. 2) that contain valid data (i.e. blocks which contain meaningful information; according to the spec of the current application, any data block(s) containing any kind of data in it are considered as data blocks having valid data) (e.g. see Col. 6, lines 45-50 and Fig. 2). The further step of recording is

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inherently taught by the Klevin because in order to determine whether the data block contains the meaningful information or not, the particular block needs to be read (i.e. I/O access by performing a read operation) first and to determine whether data exist (i.e. to identify whether it comprise the file data or not) in it or not and then each block get backed up by copying it to the storage medium 250, i.e. read, i.e. I/O access is performed (e.g. see Col. 6, lines 45-53 and Figs. 2 and 8A). Klevin further teaches about identifying, based on the recorded I/O access information (i.e. based on the recorded flags which are generated by performing at least one read (I/O access) operation), one or more data blocks on the storage device that contain valid data; and replicating the data blocks that contain valid data (e.g. see Col. 6, lines 45-53 and Figs. 2 and 8A).

As per claim 2, Klein teaches the claimed invention as described above and furthermore, Klein teaches that the at least one read operation includes reading metadata (i.e. extent map info stored in 216 in Fig. 2) associated with one or more files (i.e. data blocks) on the storage device (e.g. see Col. 6, lines 45-53).

As per claims 10 and 11, see arguments with respect to the rejection of claims 1-2, respectively. Claims 10 and 11 are also rejected based on the same rationale as the rejection of claims 1-2, respectively.

As per claims 18 and 20, see arguments with respect to the rejection of claims 1-2, respectively. Claims 18 and 20 are also rejected based on the same rationale as the rejection of claims 1-2, respectively.

As per claims 26, 29 and 32, see arguments with respect to the rejection of claims 1-2. Claims 26, 29 and 32 are also rejected based on the same rationale as the rejection of claims 1-2.

As per claim 13, Klein teaches the claimed invention as described above and furthermore, Klein teaches that a computer (i.e. 100 in Fig. 1) associated with the storage device (e.g. see Col. 3, lines 23-41).

As per claim 25, Klein teaches the claimed invention as described above and furthermore, Klein teaches that the file system is structured on a file level (e.g. see Col. 7, 44-47).

As per claim 28, 31 and 34, Klein teaches the claimed invention as described above and furthermore, Klein teaches that the list and the replicated data blocks are stored in a memory (i.e. a storage medium 250 in Fig. 2) (e.g. see Col. 6, lines 49-53 and Fig. 2).

As per claim 35, see arguments with respect to the rejection of claim 1. Claim 35 is also rejected based on the same rationale as the rejection of claim 1.

As per claim 37, Klein teaches the claimed invention as described above and furthermore, Klein teaches that the at least one processor comprises: a first and a second software program (i.e. programs stored on 106 and 107 in Fig. 1) operating on the computer (e.g. see Fig. 1).

As per claims 38 and 39, Klein teaches a method of replicating data from a storage device (i.e. 200 in Fig. 2), comprising: receiving a message to replicate data stored on a storage device (inherent feature; since some kind of message/signal has to

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come either from the processor or the user to initiate the backup process); in response to the message, identifying on the storage device at least one data block comprising file data (i.e. meaningful data). The further step of performing is inherently taught by Klevin because the particular block needs to be read (i.e. I/O access by performing a read operation) first and to determine whether data exist (i.e. to identify whether it comprise the file data or not) in it or not and then each block get backed up/replicated by copying it to the storage medium 250, i.e. read, i.e. I/O access is performed (e.g. see Col. 6, lines 45-53 and Figs. 2 and 8A).

As per claims 40-41, Klein teaches the claimed invention as described above and furthermore, Klein teaches that receiving message(s) for initiating and ending the recording of I/O accesses performed by the storage device, i.e. by starting and ending the back-up process of data from the storage device (e.g. see abstract).

As per claim 42, see arguments with respect to the rejection of claims 38-41. Claim 42 is also rejected based on the same rationale as the rejection of claims 38-41.

As per claims 43-44, Klein teaches the claimed invention as described above. The further step of identifying is inherently taught by the Klevin because in order to determine whether the data block contains the meaningful information or not, the particular block needs to be read (i.e. I/O access by performing a read operation) first and to determine whether data exist (i.e. to identify whether it comprise the file data or not) in it or not and then each block get backed up by copying it to the storage medium 250, i.e. read, i.e. I/O access is performed (e.g. see Col. 6, lines 45-53 and Figs. 2 and 8A). Furthermore, the data block has to be referenced in the file system associated with

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the storage device in order to get it identified and read. Therefore, claims 43 and 44 are inherently taught by Klevin.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3, 12, 21 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klein in view of Long et al. (USPN: 2003/0195865) hereinafter, Long.

As per claim 3, Klein teaches the claimed invention as described above.

However, Klein does not teach that reading metadata includes reading the name of the file, access permissions to the file, the date of creation of the file, and dates of modification of the file. Long, on the other hand, teaches that information about files is generally referred to as the file system "metadata". Examples of metadata associated with files are: (1) a document's name, creation date, last modified date (2) permissions for accessing the document, and (3) the folder path for accessing the document (e.g. see paragraph [0010]). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the current invention was made to modifying Klein's method by including the step of reading information about file, such as name, access permission, date of creation and date of modification, as taught by Long. In doing so, it can be

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determined which specific data block(s) are valid and based on that those data block(s) is/are replicated. Therefore, it is being advantageous.

As per claims 12, 21 and 27, see arguments with respect to the rejection of claim 3. Claims 12, 21 and 27 are also rejected based on the same rationale as the rejection of claim 3.

8. Claims 4-5, 14-17, 19 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klein in view of Neufeld (USPN: 5,668,971).

As per claim 4, Klein teaches the claimed invention as described above. However, Klein failed to teach the further limitation of cleaning a cache on a computer associated with the storage device before performing any read operations. Neufeld, on the other hand, teaches about cleaning/flushing the cache memory (i.e. the combination of 24 and 28 in Fig. 1) prior to performing any read operations (e.g. see Col. 3, lines 58-65). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the current invention was made to implement the cleaning step of Neufeld in the method taught by Klein. In doing so, it will prevent any attempts to fill (invalid) data from the cache memory in response to the read request.

As per claim 5, Klein teaches a method for replicating data from a storage device as described above in the rejection of claim 1. However, Klein failed to teach the further limitation of cleaning a cache on a computer associated with the storage device before performing any read operations. Neufeld, on the other hand, teaches about cleaning/flushing the cache memory (i.e. the combination of 24 and 28 in Fig. 1) prior to

performing any read operations (e.g. see Col. 3, lines 58-65). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the current invention was made to implement the cleaning step of Neufeld in the method taught by Klein. In doing so, it will prevent any attempts to fill (invalid) data from the cache memory in response to the read request.

As per claims 15 and 19, see arguments with respect to the rejection of claim 4. Claims 15 and 19 are also rejected based on the same rationale as the rejection of claim 4.

As per claims 14, 16-17 and 22-24, the combination of Klein and Neufeld teaches the claimed invention as described above. The further limitations of having, the (first) processor residing on the computer, the (second) processor is configured to manage the storage operations of the computer, the (second) processor comprising the filter driver (i.e. the software program) and, the (second) processor is part of a storage management system, are inherently embedded in the system taught by Klein.

9. Claims 30 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klein in view of van Rietschote (USPN: 6,757,778) hereinafter, Rietschote.

As per claims 30 and 33, Klein teaches the claimed invention as described above. However, Klein failed to teach that the file system is associated with a virtual storage device used to manage storage of data on the storage device. Rietschote, on the other hand, teaches about associating the file system with a virtual storage device used to manage storage of data on the storage device (e.g. see the abstract).

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Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the current invention was made to implement the teachings of Rietschote in the method and system taught by Klein since if the storage management system supports a set of storage commands for the virtual storage devices, the storage management system can schedule various applications/operating systems for execution on multiple processing hardware, and present a consistent view of storage for a given application/operating system, independent of which of the multiple processing hardware on which the application/operation system is executing.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hetul Patel whose telephone number is 571-272-4184. The examiner can normally be reached on 8:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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HBP



MATTHEW KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100